

Notice of Allowability**Application No.**

10/664,340

Applicant(s)DOERR, CHRISTOPHER
RICHARD**Examiner**

Charlie Peng

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendments filed on 1/27/05.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ The drawings filed on 17 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Double Patenting

Claims 1-10 had been previously rejected under obviousness-type double patenting. The applicant has canceled claim 10. A Terminal Disclaimer filed referring to current application (10/664,340) and a copending application (10/760,516) has been accepted. The examiner withdraws the Provisional Obviousness-Type Double Patenting rejections on claims 1-9.

Allowable Subject Matter

Claims 1-9 are allowed.

The following is an examiner's statement of reasons for allowance:

Claim 1 teaches three successive MZIs. Two adjustable couplers (104, 106) are used to connect and shared by adjacent MZIs. Two other fixed 50/50 couplers (102, 108) are used to receiving and output optical signals. In addition, the two adjustable couplers are adjusted with equal coupling ratios using a common control signal (not shown). The applicant states that this invention is novel over prior art (U.S. Patent 6,785,446 to Chandrasekhar et al.). The claims teaches that the adjustable couplers are shared between two MZIs and directly adjusted by the common control signal, while Chandrasekhar et al. use a combination of fixed couplers (402, 404, 407, 409) and controlled variable phase elements (403, 408) to form adjustable couplers. As each of the controlled variable phase elements is an integral part of a first or a third MZI, it cannot be shared among MZIs.

Claim 9 teaches a component structure that is similar to half of what is claimed in claim 1, with a second MZI having a reflective facet.

The examiner agrees with the applicant on his position with regard to claims 1 and 9. Other prior art considered includes:

U.S. Patent 6,853,756 to Gerlach et al., which has similar component construction as Chandrasekhar and no common control signal;

U.S. Patent 6,842,547 to Bulow, which has similar component construction as Chandrasekhar but does not teach the concept of adjustable couplers;

U.S. PGPub 2003/0053167 to Xu, which has similar component construction as Chandrasekhar but no common control signal and consequently no adjustable couplers.

Furthermore, 35 U.S.C. §103 (c) precludes Chandrasekhar as part of any rejections based on 35 U.S.C. §103 (a). It is the examiner's opinion that the prior art of record, taken alone or in combination, fails to disclose or render obvious in combination with the rest of the limitations of the base claim.

Claim 2, although an independent claim, comprises all the limitations of claim 1 and has further limitations with regard to the path length differences. Claim 2 is allowed.

Claims 3-8 are allowed by virtue of being direct and indirect dependent claims of an allowed claim 1.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

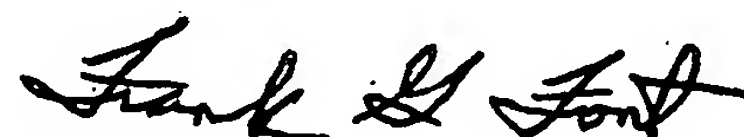
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charlie Peng whose telephone number is (571) 272-2177. The examiner can normally be reached on 8:30 am - 5 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Frank G. Font
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